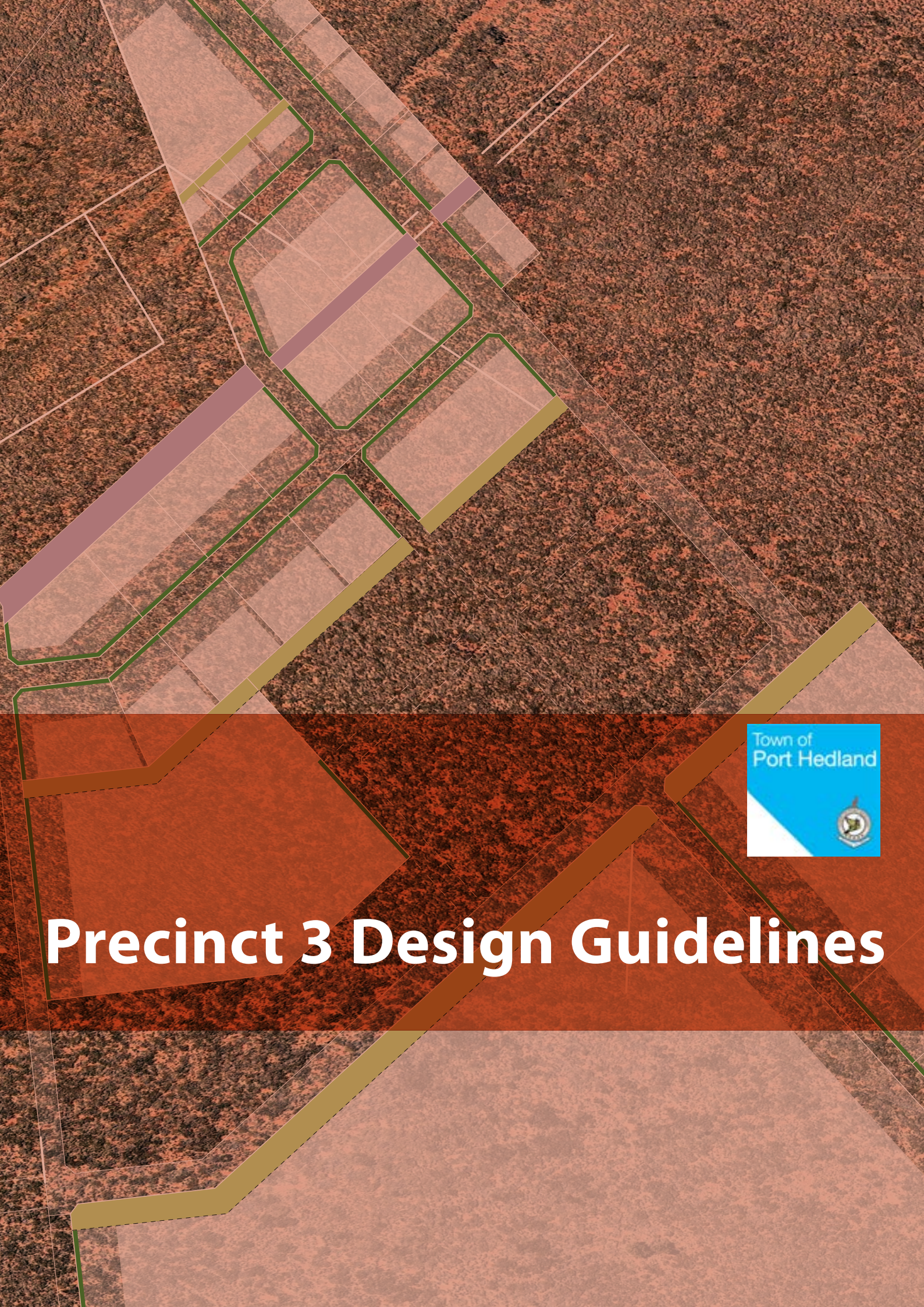


Town of Port Hedland

Precinct 3 Design Guidelines

CONTENTS

1.1 Vision

Precinct 3 will provide an important mix of uses and form an important part of Hedland's continued growth into the future. It will provide a range of lot types and sizes and thereby encourage a diverse mix of light and service industrial, warehousing and bulky goods commercial business opportunities. In addition, Precinct 3 will include sites for Transient Workforce Accommodation to assist in accommodating the additional people required to construct the infrastructure required to implement the Port City Growth Plan and major infrastructure projects required to ensure Hedland's future as a Pilbara City.

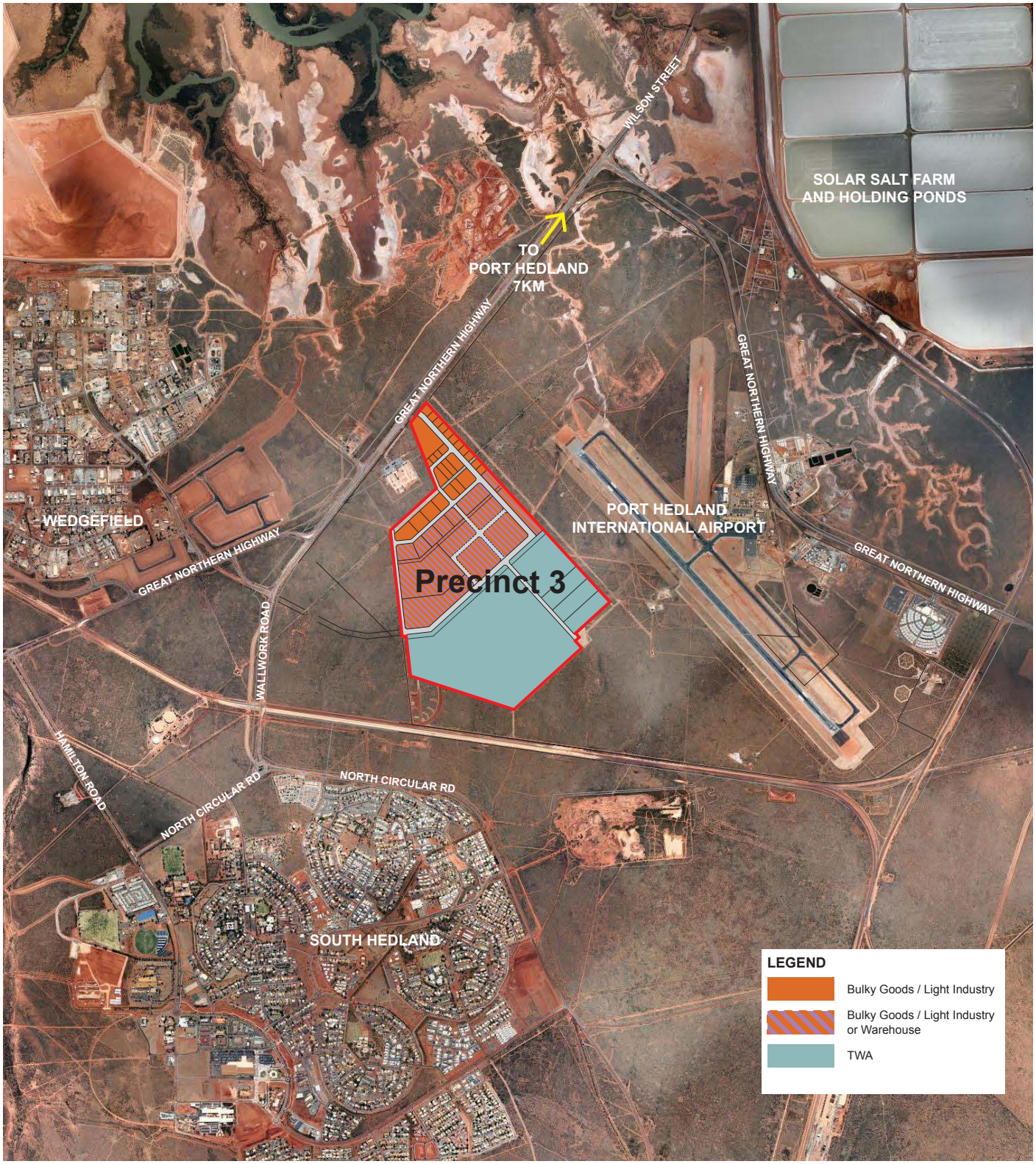
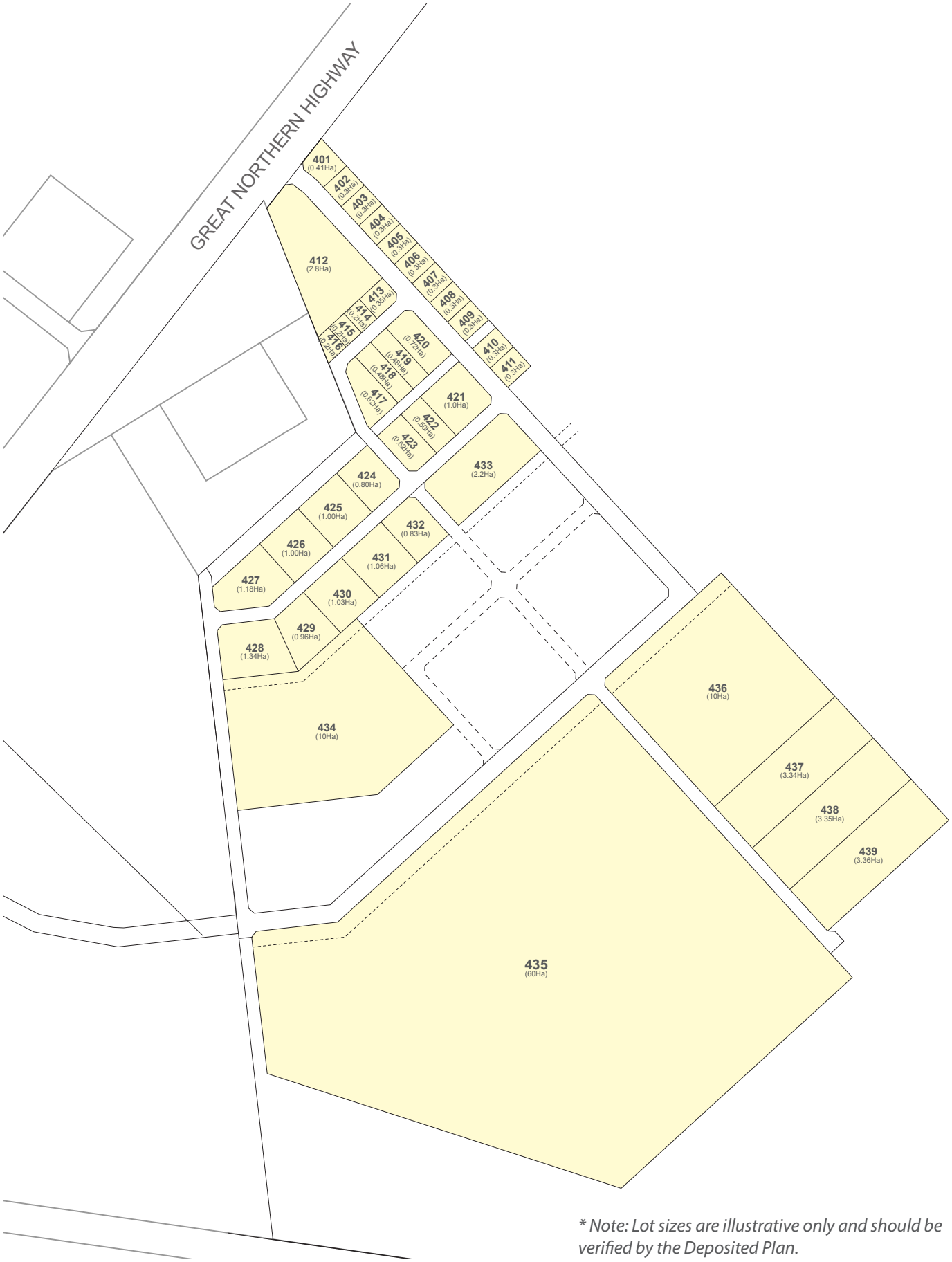


Figure 1.1a *- Context Plan.*



** Note: Lot sizes are illustrative only and should be verified by the Deposited Plan.*

***Figure 1.1b**- Local Plan.*

1.2 Purpose

These Design Guidelines apply to all lots with Precinct 3 and will ensure that a high standard of development is maintained throughout the development of the precinct and the value of your asset is maintained. The Guidelines will also help purchasers, developers and building designers appropriately design premises which assist in delivering the vision for Precinct 3.

The key purposes of the Guidelines are as follows:

- To create a high quality light industrial / bulky goods estate which services the Port Hedland community and provides a place of employment;
- To form a cohesive light industrial / bulky goods precinct which capitalises on the proximity of the Port Hedland Airport, and allows a for a range and scale of businesses that may benefit from this proximity; and
- To implement and achieve sustainable building and management practices, including maximizing resource efficiency, minimising waste to landfill, minimizing energy use and water consumption.

1.3 Structure

The Port Hedland Airport Precinct 3 Design Guidelines is divided into two parts, each relating to the two primary land uses intended for the site: **Part A - Light Industrial / Bulky Goods Guidelines** and **Part B - TWA Guidelines**.

To assist proponents in preparing their designs and applications, the provisions for each section have been arranged by topic and these topics grouped into themed sections.

The provisions for each topic are presented in the form of **Objectives**, **Development Controls** and **Design Guidance.** The intent of each category is explained below.

Objectives

- Outlines the design intent or philosophy underpinning the mandatory criteria of the Development Controls, the best practice criteria recommended in Design Guidance and explains the desired outcome to be achieved by them.

Development Controls

- Articulates the mandatory criteria that must be met in the design for all development proposals and collectively ensures that the principles and objectives of the Design Guidelines are met. Applicants may provide alternative design solutions if it can be demonstrated to the satisfaction of the Town that the Objectives are clearly met or exceeded.

Design Guidance

- Recommends additional measures by which a building can achieve a higher level of sustainable design, precinct interaction and/or architectural character.

2.1 Relationship to Other Planning Instruments

The Guidelines have been prepared under section 5.1 of the Town of Port Hedland Town Planning Scheme No. 5 (the Scheme), and will be implemented as a local planning policy.

The Guidelines should be read in conjunction with the Scheme and the Town's other planning policies. In the event of any inconsistence between the Guidelines and the Scheme or any other policy, the provisions of the Scheme shall prevail with detailed development guidance provided by these Guidelines. Any variations permitted under the Scheme will be assessed against these Guidelines.

The Town of Port Hedland will have due regard to the provisions of the Design Guidelines and their objectives when making a determination on a Development Application. Development in accordance with these Guidelines is deemed to comply.

It is recognised that alternative designs may be required to satisfy the specific needs of the site or proponent. Alternative designs may be considered where the proponent can demonstrate that the proposal will comply with the overall objectives and intent of the Design Guidelines and with the Town's other requirements. A proponent wishing to pursue an alternative design must provide appropriate justification, and describe the particular circumstances of the site which necessitate the design.

2.2 Lodgement Requirements

Applications are to be made to the Town of Port Hedland for planning approval. As a minimum, the application should comprise:

- A completed 'Application for Planning Approval' form, available from the Town of Port Hedland's website;
- A copy of the Certificate of Title; and
- TWO copies of the development plans with the following details:
  - » Site plan (1:200 preferred) of property with lot dimensions and area, north point, contours (or levels), abutting street name(s), location of proposed building(s) including setbacks to boundaries, location of access/egress point(s), car parking and manoeuvring areas, infrastructure within the abutting road reserve (e.g. power poles, signage and Telstra pits);
  - » Floor plans of proposed building(s) (1:100 preferred);
  - » Elevations of proposed building(s) (1:100 preferred) including the existing and finished ground levels and the means to stabilise exposed sloping soil (e.g. batters, retaining walls);
  - » Landscaping concept plan for works forward of the building line (including species list);
  - » Stormwater management measures;
  - » Construction materials and colour scheme;
  - » Fencing details (type, location and height); and
  - » Any other information as necessary to demonstrate compliance with these guidelines.

It should be noted that following the issue of planning approval, an application is then required to be submitted for issue of a building license prior to the commencement of works.

2.3 Approval Process

All proposed development within Precinct 3 will be subject to planning approvals and building licenses administered by the Town.

A Development Application is required to be prepared in accordance with the procedures and requirements set out by the above documents. Once a Development Application has been lodged with the Town, it will be assessed against the provisions of all relevant documents.

A Development Checklist is included as Appendix A and a copy of the application for Planning Approval form can be found on the Town's website. These assessments will ensure all applicable standards, controls and requirements have been met and the development is consistent with the long term outcomes envisaged for Precinct 3.

3.1 Land Uses

All lots within the Precinct 3 development benefit from, but must also respond to their proximity to Port Hedland International Airport. All buildings heights and materials, lighting, towers and frequencies shall conform to the Civil Aviation Safety Authority Regulations and Air Services Australia Regulations.

In addition, the proposed land uses have been arranged in relation to Great Northern Highway according to their anticipated operational requirements as illustrated in the diagram below (***Figure 3.1a***). The intent is to locate bulky goods, service industries and higher traffic uses closer to Great Northern Highway to benefit from the exposure to passing trade, with more inert warehouse uses providing a transitional buffer to the TWA to the south-east. The specific land use requirements and provisions are set by the Scheme.

The Precinct 3 development is divided into two parts: **Part A** and **Part B**.

Part A will include:

- Bulky Goods
- Light Industry
- Warehouse

Part B will include:

- Transient Worker Accommodation

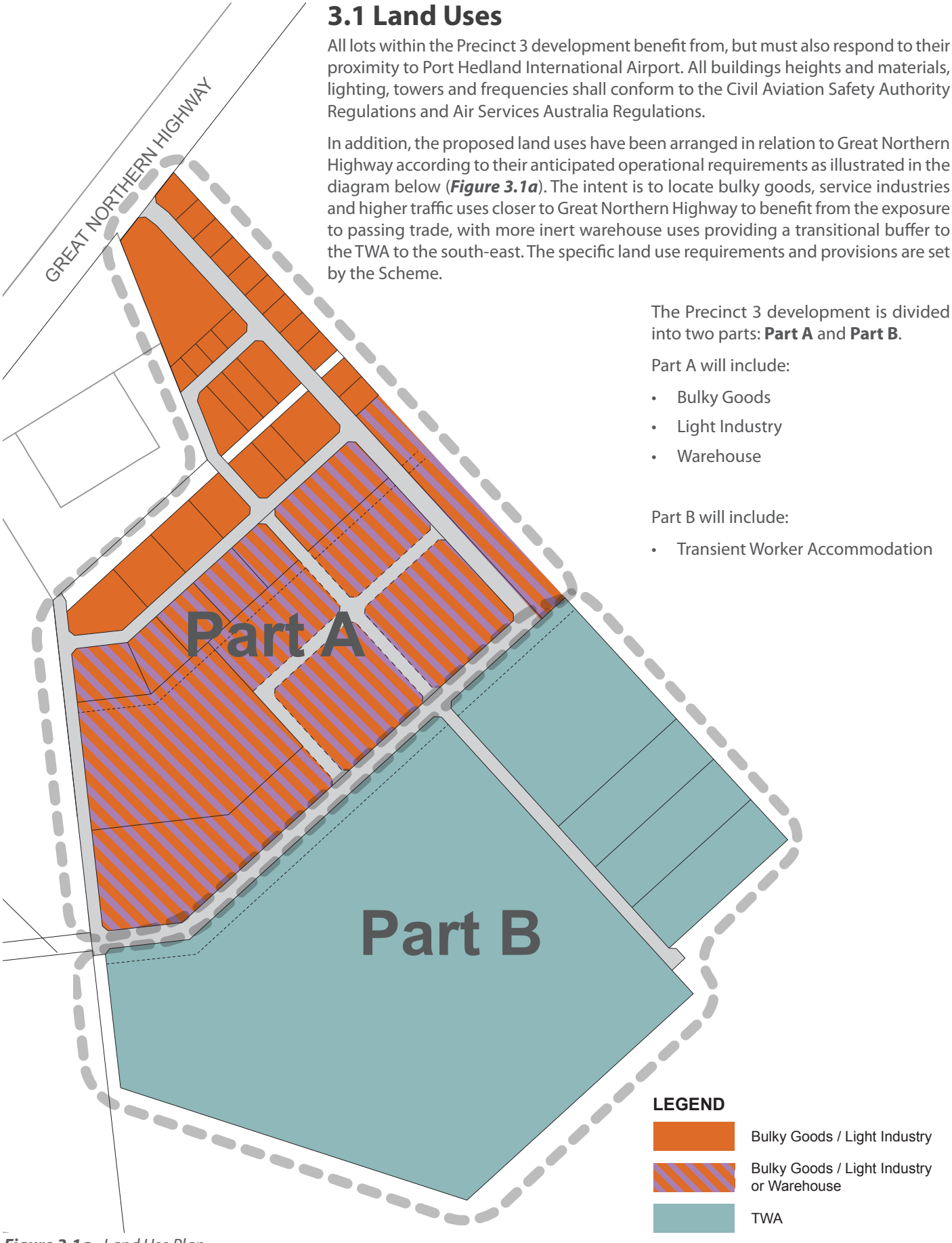


Figure 3.1a *- Land Use Plan.*

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PART A -
LIGHT INDUSTRIAL / BULKY GOODS GUIDELINES

4.0 - Primary Building Principles

5.0 - Built Form Design

6.0 - Natural Resource Management

4.1 Building Setbacks

The nominated setbacks for each lot have been determined so as to allow for the accommodation of required parking, a 5m mandatory landscape setback zone and a footpath in front of the building.

Objectives:

- To provide a consistent front setback between adjacent buildings.
- To provide flexibility for future changes of lot or building use that can still comply with the parking provisions of the Scheme.

Development Controls:

- Setbacks are as per ***Figure 4.1a.***
- A 5m landscape setback zone is required to all street frontages.
- Buildings are required to be built to the nominated front setback line for a minimum of 60% of the building frontage.
- The 41m, 25m and 19m setback controls are inclusive of the 5m landscaped setback zone.
- There are no minimum side or rear setbacks. However, developments featuring a nil side and rear setback will be required to demonstrate ventilation and natural lighting capability. See ***Section 6.4 Natural Light & Ventilation*** for guidance on natural light and ventilation. Those with a side or rear setback not used for vehicle access will also be required to undertake landscaping.

Design Guidance:

- Developers are encouraged to setback buildings a minimum of 3 metres from both the side and rear lot boundaries to assist with natural light penetration and natural cross flow ventilation and undertake landscaping to reduce heat loads.

Figure 4.1a *- Setback & Easement Plan.*

LEGEND

- 41m setback
- 25m setback
- Alternate 41m setback (if lot not used for Warehouse purposes)
- 19m setback
- 6m side setback for drainage
- 5 m Landscaped Setback Zone
- Drainage Easement
- WaterCorp Easement

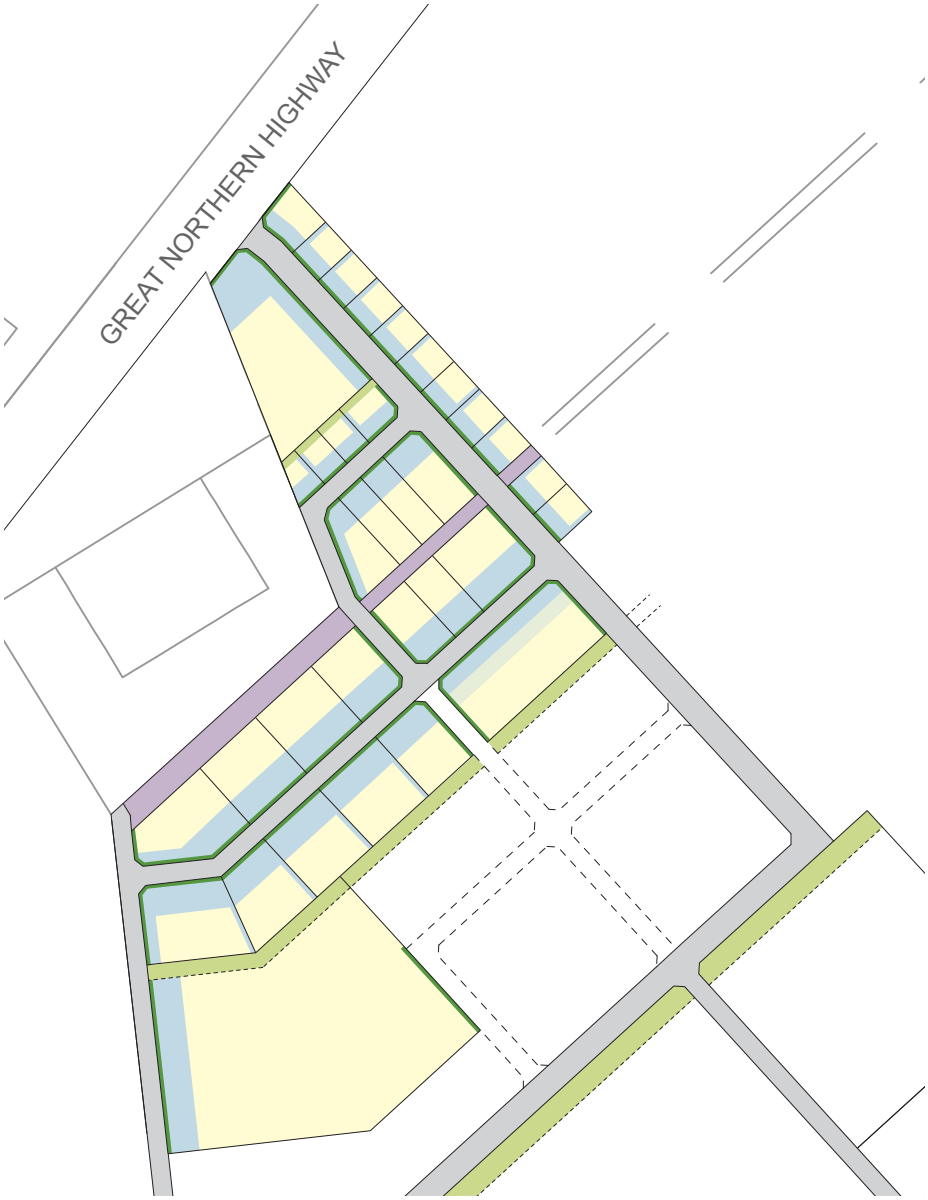


***Figure 4.2a**- Site Coverage Plan.*

LEGEND

- Built Form Zone
- 5 m Landscaped Setback Zone
- Carparking and Access Setback Zone
- Drainage Easement
- WaterCorp Easement
- Stage 1 Road Construction

4.2 Building Height & Site Coverage

These provisions relate to the maximum overall height of buildings and the maximum size of the building footprint.

Objectives:

- To maintain minimum clearances for the operational requirements of the Airport.

Development Controls:

- Buildings should be contained within the built form zone, refer to ***Figure 4.2a.***
- There are no plot ratio or site cover requirements, however, buildings must still meet the front setback and Scheme parking requirements.
- Buildings shall be no more than 8m in height from finished ground level, unless specific approval is obtained from Air Services.

Design Guidance:

- Refer to ***Section 5.8 Outbuildings & Other Structures*** for provisions relating to the arrangement of multiple buildings on the lot.

4.3 Parking & Site Access

There are two typical setback conditions throughout the industrial precinct- 25m & 41m with occasional 19m setbacks to side frontages.

- The 19 metres will provide sufficient space for one row of visitor/staff car parking bays, a vehicle manoeuvring and access aisle, one pedestrian access path and the 5m landscape strip (refer to ***Figure 4.3a***).
- The 25 metres will provide sufficient space for two rows of visitor/staff car parking bays, a vehicle manoeuvring and access aisle, one pedestrian access path and the 5m landscape strip.
- The 41 metres provides sufficient space for four rows of visitor/staff car parking bays, two vehicle manoeuvring and access aisles, one pedestrian access path and the 5m landscape strip as well as possibilities to re-orient parking modules as desired.

Objectives:

- To provide easy, clear and legible visitor and staff parking.
- To minimise conflicts between parking and service / loading vehicle areas.

Development Controls:

- The minimum provision of car parking bays shall accord with the provisions of ***Appendix 7 of the Town of Port Hedland Town Planning Scheme No. 5***.
- All car parking and vehicle accessways must be contained on site, excluding the designated crossovers.
- Wherever possible service / haulage vehicles are to be separated from visitor and staff parking areas, screened from the street and located at the rear or sides of the buildings behind the front building line.
- Parking areas and access driveways shall be sealed to Council specifications to the satisfaction of the Manager Technical Services.
- Parking areas are to be provided with suitable species of shade tree at a ratio of 1 per 4 car bays, evenly throughout

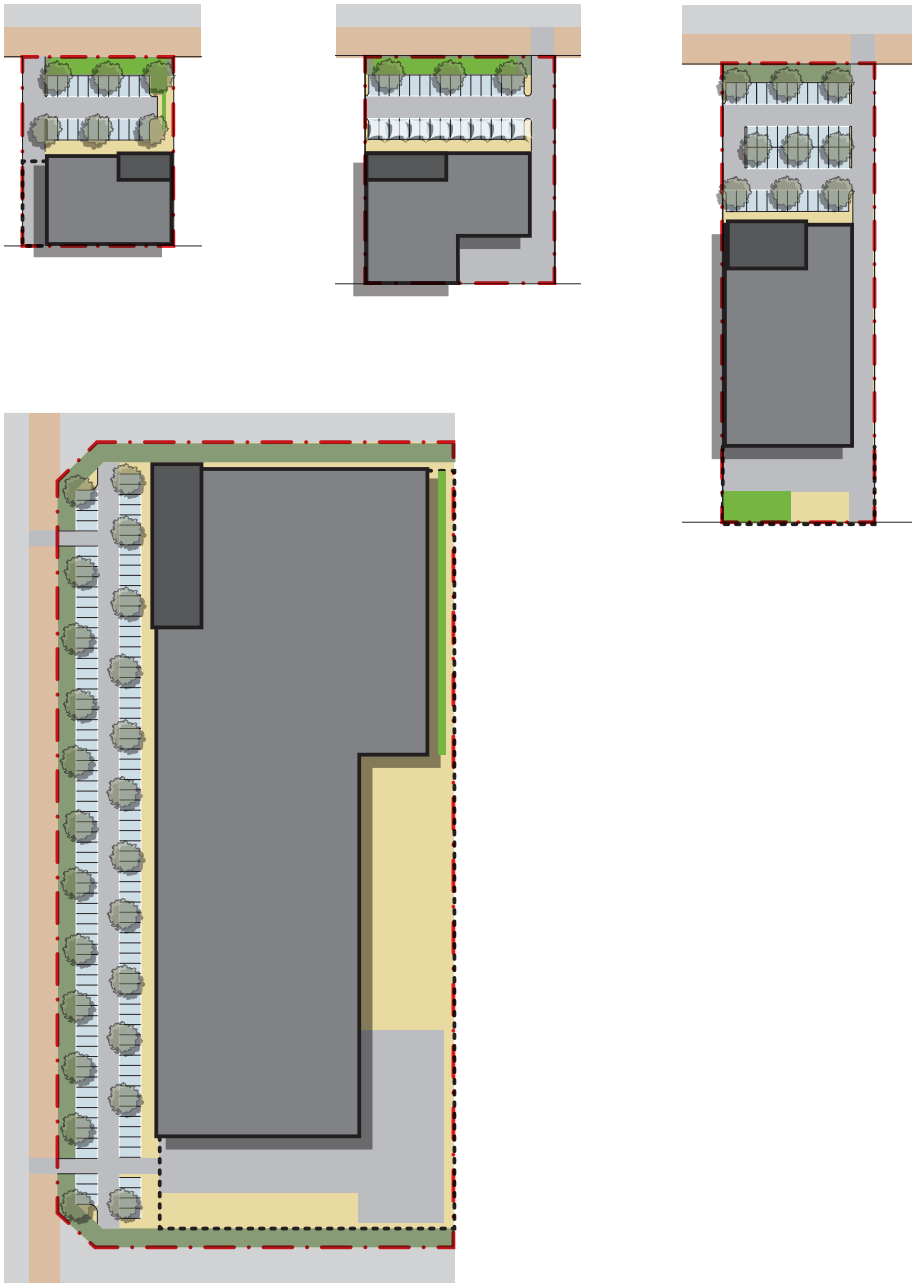


Figure 4.3ba *- Examples of indicative parking layouts setbacks for different lot sizes.*

***Figure 4.3b**- Site Access Plan.*

LEGEND

Built Form Zone

Preferred Crossover Location

the parking areas (unless alternate shading is provided for bays adjacent to the building).

- Parking areas must be designed to channel water into the vegetated allotment swale (refer to ***Section 6.1 Stormwater & Drainage Management***).
- Vehicle crossovers will be provided and constructed prior to sale of the lot. These can not be altered without the Town's approval and any additional crossovers will be at the developer's expense (refer to ***Figure 4.3b***).

Design Guidance:

- Clear paths for pedestrian movement should be provided that are separated from areas of frequent vehicular movement.
- Additional car parking over and above the minimum requirements should be located to the side or rear of the building, behind the building line.
- Cyclone rated shade cloth or other structures can be used as an alternative treatment for the shading of the parking bays nearest to the front building line.

5.1 Building Entries & Address

These provisions relate to the relationship of buildings and their entrances to the street.

Objectives:

- To ensure that all buildings in the precinct relate and contribute to the streetscape and character of the precinct.
- To provide clear visual cues for entry points for visitors and deliveries through the building design.

Development Controls:

- Buildings must be designed to address the street.
- The main entrance is to be on the front elevation or close to the front of the building and be clearly visible from the street and 'signalled' through the design.
- Entrance points to buildings are to be designed as focus points and must provide protection for pedestrians by means of substantial integrated building elements such as a verandah, canopy or colonnade.
- Where more than one building is planned for a site, their design must result in the creation of a group of integrated buildings presenting an harmonious image.

Design Guidance:

- Consideration should be given to the visual impression from the street and at a point of entry.

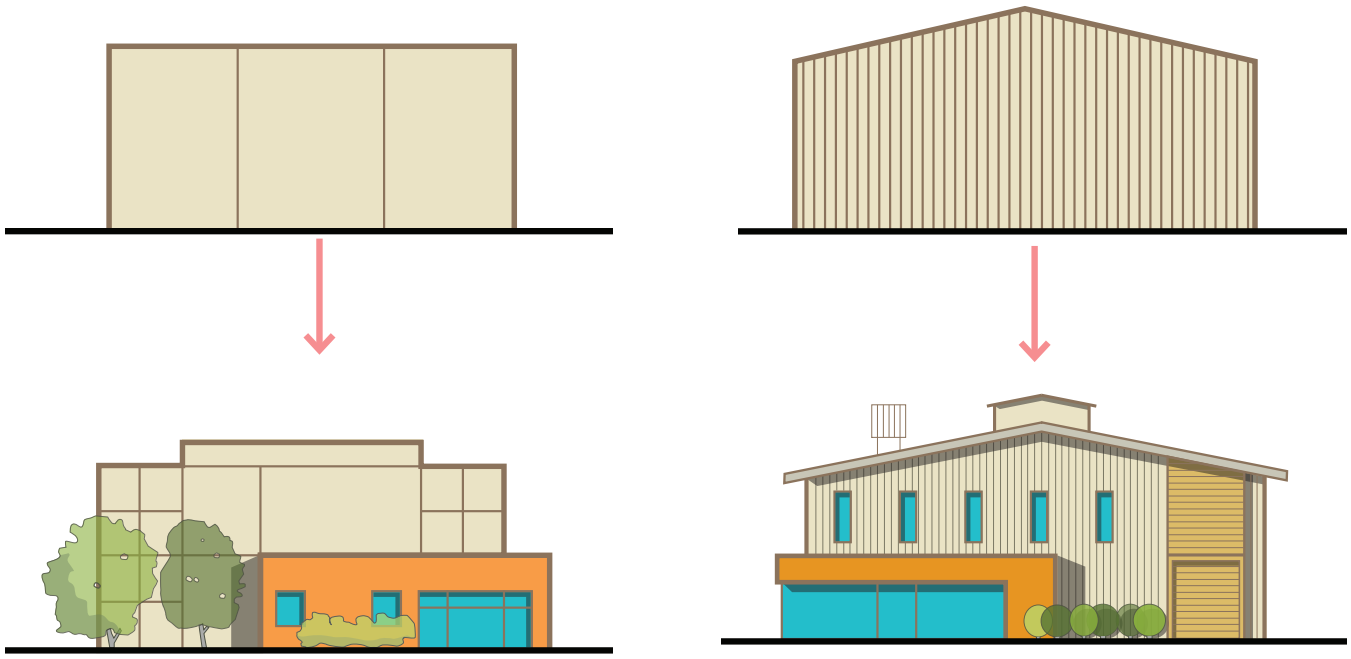


Figure 5.1a *- Examples of opportunities for avoiding inappropriate blank, monotonous facades by arranging elements to create a legible and expressive facade.*

5.2 External Service, Washdown Bays, Rubbish & Storage Areas

These provisions relate to the location and treatment of external service and storage areas.

Objectives:

- To minimise the visual impact of external service and storage areas on the streetscape.
- To limit potential for vermin infestation.

Development Controls:

- No servicing, loading and unloading or open storage of goods, unserviceable vehicles or machinery shall be carried out within the front boundary setback area (forward of the building line). This area shall be used only for landscaping and drainage, car parking, or where appropriate and subject to the Town's approval, for trade display.
- All open storage areas shall be screened from the street and adjoining properties by landscaping, fencing and/or other means acceptable to the Town of Port Hedland.
- Rubbish bin storage areas must also be screened from all road frontages. The dimensions and location of rubbish bin storage areas will be at the discretion of the Town.
- Rubbish bins and their storage areas are to be sealed and covered and provided with connections to water and some form of sewerage disposal to enable the cleaning of bins.
- If not fenced or otherwise enclosed, tie down points or alternative means of securing bins during cyclones must be provided.

5.3 Boundary Fencing

These provisions relate to the location and treatment of fencing for each site and aim to achieve a level of consistency within the development as a whole.

Objectives:

- To provide security for businesses, without compromising the visual appeal of the precinct.

Development Controls:

- No fencing is permitted forward of the building line.
- Security fencing will be permitted along side and rear fences (i.e. along boundaries without road frontage).
- Electric and barbed wire fencing shall only be permitted if considered suitable by the Town of Port Hedland to the satisfaction of the Manager of Planning Services.
- The minimum standard for fencing is black cyclone mesh PVC galvanised link mesh fencing.

5.4 Material Finishes & Colour

These provisions relate to the finishes and colours to be used for external walls, roofs and the like within the estate.

Objectives:

- To use a varied palette of materials, finishes and colours within the building design to break down the perceived mass of the building and to avoid monotonous, uniform building facades.
- To ensure that materials and colours do not adversely impact airport operations in the area.
- To establish a sense of place and permanence for the precinct.

Development Controls:

- Roof cladding shall be non-reflective. Zincalume, 'Surfmist', white or similar finishes will not be approved.
- Non-street fronting side and rear frontages may be Colorbond or unpainted concrete.

Materials

- Buildings must feature a minimum of two external materials to the street.
- A minimum of 15% of the front facade shall be constructed of solid material such as bricks, stone, concrete, blockwork or the like rather than lightweight cladding.
- Large expanses of zincalume metal finished cladding will not be accepted.
- All external materials shall be cyclone resistant.

Colour

- Buildings must feature at least one base colour and one feature colour / material.

Design Guidance:

Appropriate quality and artistic signage that is integrated into the external materials and colour of the building is encouraged along the exposed rear boundary of buildings abutting the Airport to capitalise on their visual exposure.

Materials

- The use of different cladding materials, separately or in combination, is encouraged.
- The use of Pilbara stone or rammed earth is particularly encouraged.

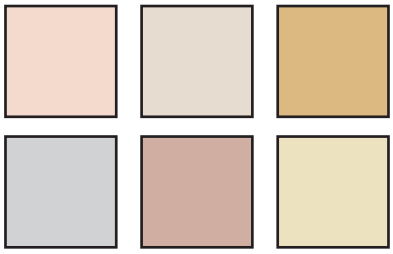
Colour

- Building colours should generally be sympathetic and complementary with the natural environment and site landscaping.
- Large areas of one material should be treated with muted colours and tones, with strong hues avoided.
- Small and important building elements such as a feature wall, canopies, steel bracing and columns, sunscreens, ventilation louvres etc. should be treated with strong highlight colours to provide visual interest and relief on the building facades.

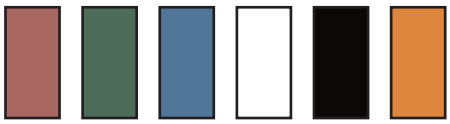
Visual Arrangement

- Utilise changes in materials and colour to express changes in the form of the building.
- Use of feature elements such as louvre vents and screens, exposed steel columns and bracing is encouraged. Careful placement of roller shutters could assist in achieving an expressive building design.
- Use of vertical, horizontal and/or angled grids to break up unrelieved wall surfaces is encouraged. These could be expressed feature joints in pre-cast concrete panels, fibre cement panel joints, brick banding or rendered panels. Division of the façade into top, middle and bottom elements using differing materials, grading of colours, horizontal lines such as dado line or parapet cappings is also encouraged.
- Projecting features such as canopies, sun shading, overhanging roof etc. should be provided, particularly over walkways.

Type A Base Colour Examples



Type B Feature Colour Examples



5.5 Plant & Equipment

These guidelines relate to the visual impact of plant and equipment and their integration into the building design.

Objectives:

- To limit the visual impact of plant and equipment, particularly from the street.

Development Controls:

- Plant and equipment must be effectively screened from street view using roof structures and architectural elements, or be designed as an integral part of the building aesthetic.

Design Guidance:

- Consideration will be given to the careful integration of essential functional elements such as stacks or ductwork into the building design as external feature elements. Some examples of methods to achieve this are shown below.

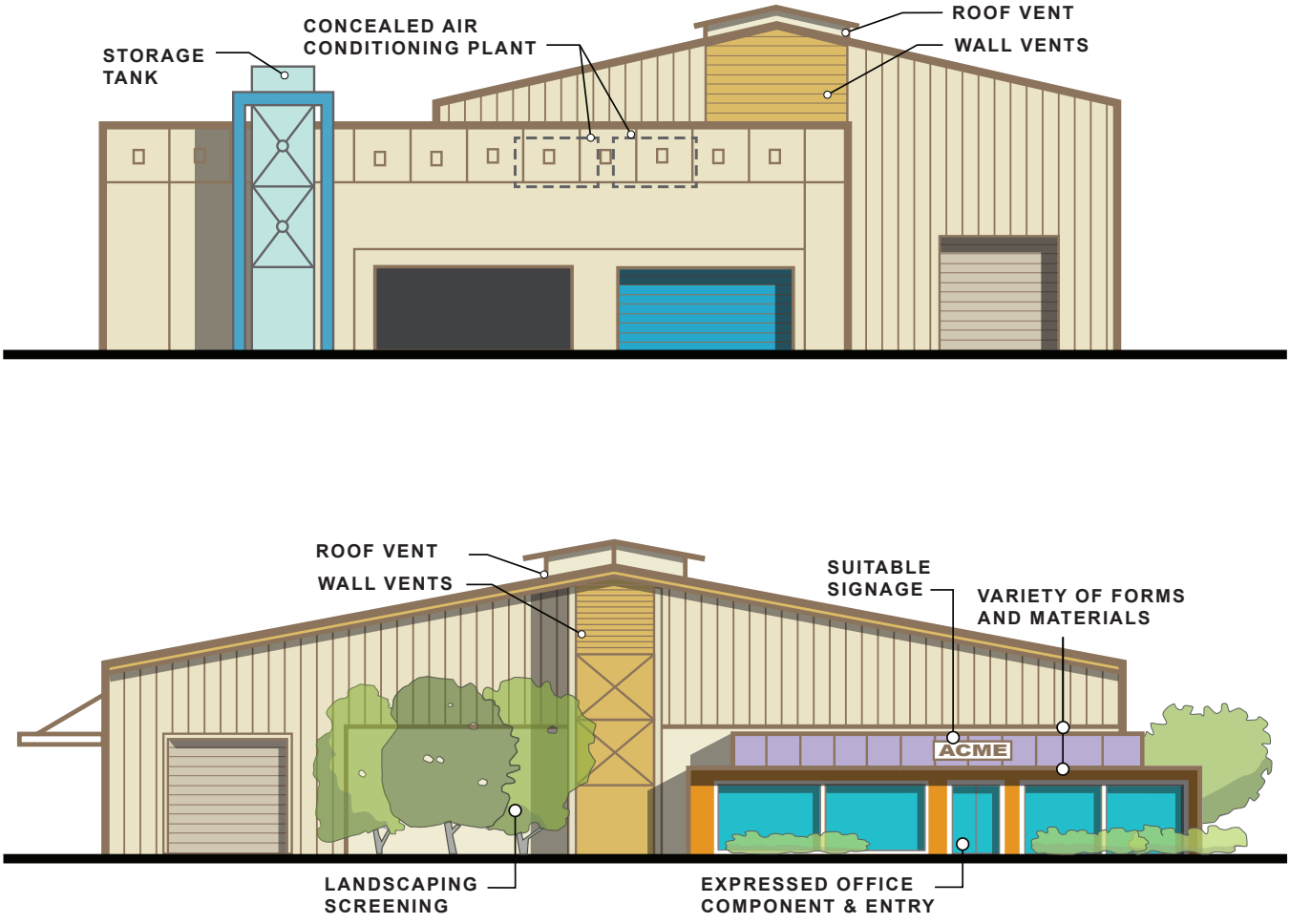


Figure 5.5a *- Potential opportunities for integrating essential elements into the building design.*

5.6 Signage & Graphics (Advertising)

Signage is an important element for commercial wayfinding for deliveries and customers alike. By it's very nature it also has a strong impact on the streetscape and if left unchecked can create confusion and unfairly impact neighbouring businesses.

Objectives:

- To strike a balance between providing good visual exposure for businesses and limiting the potential for visual clutter and adverse impacts on neighbours.

Development Controls:

- Only one free-standing pylon or composite sign is permitted per lot and is to be provided within the front boundary landscape zone.
  - » Where multiple occupancy is proposed, the composite sign may have one panel per occupancy.
- All signs shall be designed as an integral part of the building fabric, and shall be of a standard equal to and consistent with the building design and detail.
- All building signs throughout a lot shall be of consistent character and design to maintain the amenity of the area.
- All signs shall be designed and placed in accordance with the Town's Local Law (Signs, Hoardings and Bill Postings).
- The following signs shall not be permitted:
  - » Intermittent flashing illuminated signs;
  - » Signage which display information unrelated to the site (e.g. billboards);
  - » Rotating or moving signs; and
  - » Sequined or glittering signs.

Design Guidance

- Large scale signage painted directly onto roofs is encouraged, given its proximity to the airport.
- Signage attached to buildings is encouraged and should be designed to be an integral part of the building, e.g. recessed in the façade, fascia or awning and incorporated as three dimensional elements to add quality to the overall design concept. Examples of opportunities for achieving this are shown in ***Figure 5.6a***.

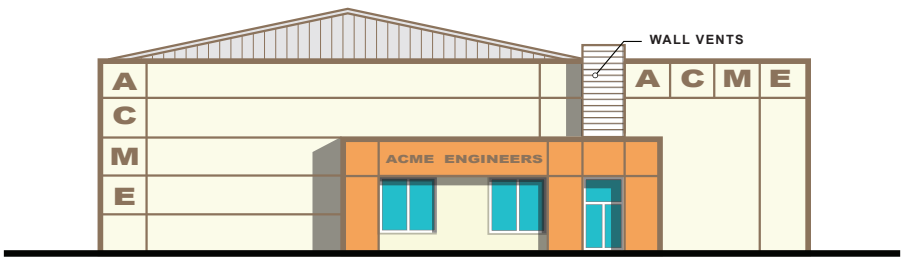


Figure 5.6a *- Potential opportunities for integrating signage into the building fabric.*

5.7 External & Internal Lighting

Lighting, in particular, will need to be carefully selected so that it does not impact the operation of the neighbouring airport.

Objectives:

- To provide a safe working environment during and after business hours.
- To minimise adverse impacts of light spill to adjoining properties, passing motorists or airport operations.

Development Controls:

External Lighting

- External lighting shall be directed to within the site, or provided with shields to limit light spill.
- No external lighting shall be directed beyond the lot boundary.
- High frequency compact fluorescent lamps or T5 Triphosphor fluorescent lamps are required for external areas.

Internal Lighting

As a minimum standard, all development must feature, but shall not be limited to:

- Light fittings that utilise high efficacy light sources such as high pressure sodium discharge lamps or T5 triphosphor fluorescent lights.

Design Guidance:

- Timer controls, photosensitive cells, or motion sensors to control operation of specific light fixtures and fittings are encouraged for both internal and external lighting.

External Lighting

- Down lights mounted on the façade should be avoided, while the up lighting of surface façades is to be encouraged.

5.8 Outbuildings & Other Structures

These provisions relate to the whole of site planning for each lot.

Objectives:

- For development on each lot to present as an integrated whole.

Design Guidance:

- Where there are numerous separate buildings on the site, the design of each should be considered with the whole of site planning so that they may present as an integrated development.
- Where possible, future expansion and staging should be considered so as to integrate these buildings.
- The use of colours, form and materials should be complementary and consistent.

6.1 Stormwater & Drainage Management

Drainage for the precinct is principally conveyed through swales within the street reserve, with the exception of two drainage reserves running broadly NE-SW.

All lots in the Light Industrial / Bulky Goods Precinct have been prepared with a sufficient volume of clean fill over the natural sandy/clay soils to create a final development pad (exclusive of front setback parking areas) which is clear of the AS 1 in 100 year flood event level. The preparation provides for an 'S' classification under AS 2870 (1996).

Lots have generally been finished with a grade towards the surrounding roads or drains. Therefore as level slabs are expected to be constructed some earthworks on site may be necessary.

Objectives:

- To ensure that each lot contributes to the effective stormwater management strategy for the precinct.
- To provide the appropriate amount of fill for the finished floor level of the buildings on each site to be 500mm clear of the AS 1 in 100 year floor event and carparking and hardstand areas to flood in extreme weather events by no more than 300mm.

Development Controls:

- On-site drainage flows should be as notated on the plan.
- The finished floor level of the buildings on each site are to be a minimum of 500mm clear of the AS 1 in 100 year floor event.
- The finished level of the carparking areas on each site are to be 300mm below of the AS 1 in 100 year floor event.
- The developer shall demonstrate how the proposed development will capture and manage surface runoff.

Figure 6.1a *- Drainage Plan.*

Note:

- The finished earthworks levels of the built form zones of the commercial precinct sites will be 200mm clear of the AS 1 in 100 year floor event to allow for a future 300mm pad to be placed on top to achieve a 500mm clearance (refer to ***Figure 6.1b***).
- Port Hedland is prone to increased mosquito numbers during and after storm events. To assist in reducing the mosquito pressures on the community, please ensure that all drainage is constructed in a manner that effectively removes the water to the drainage reserve and eliminates standing water, since this provides an ideal mosquito breeding location.

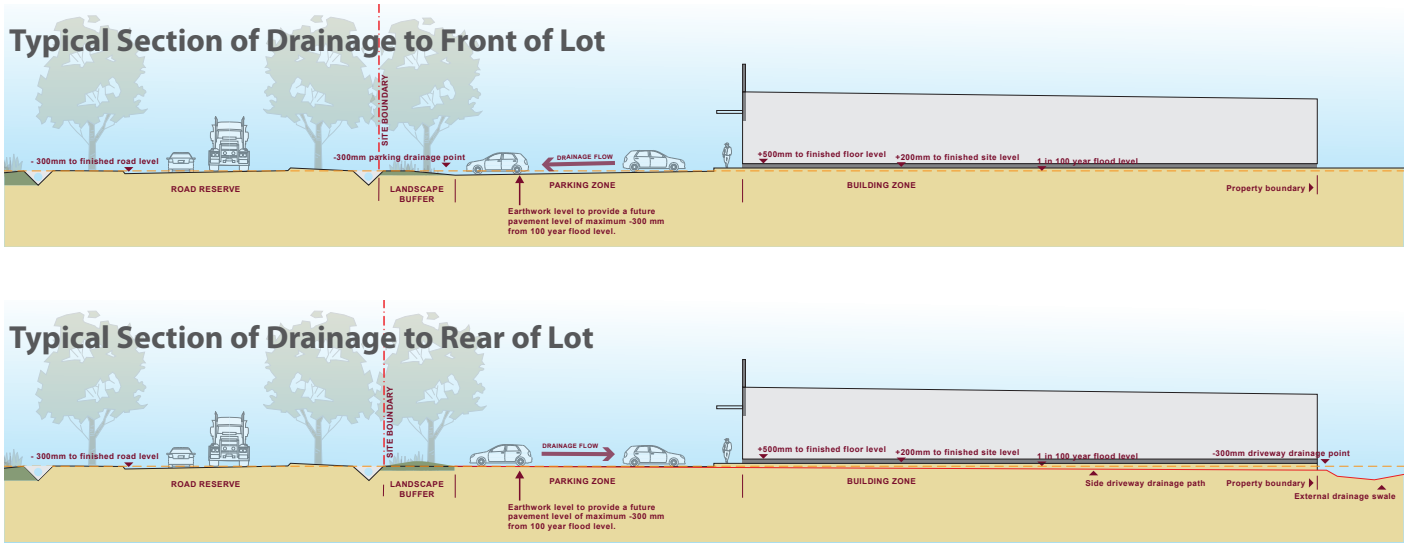


Figure 6.1b *- Typical Sections through Different Lot Drainage Types*

6.2 Landscaping

These provisions relate to the application of appropriate species of plants for landscaping treatments within the development. The trees on the species list have been limited to those that will not to encourage birdlife to the area. Water-hungry species are proposed for landscape areas associated with drainage swales and ATU disposal areas. Species with low water requirements should be used for all other areas.

Figure 6.2a *- Potential additional opportunities for screening of building with landscape.*

Objectives:

- To soften the visual impact of built form and provide shade where possible.
- To avoid increase in local bird activity, due to conflicts with neighbouring airport uses.

Development Controls:

- The purchaser is required to vegetate and maintain the full extent of the 5 metre wide landscape setback to the front section of the lot, to the satisfaction of the Town of Port Hedland.
- All plant species must be selected and planted in accordance with the swale and open area planting list (refer to ***Figure 6.2b***).
- All landscape and planting shall be undertaken by a qualified contractor.
- Suitable species of shade tree are to be provided to parking areas at a ratio of 1 per 4 car bays, evenly throughout the parking areas (unless alternate shading is provided for bays adjacent to the building).

Design Guidance:

- All approved plant species should be planted in the appropriate planting zones. For example: waterlogged swale planting, intermediate swale planting, intermediate swale planting, and dry planting.
- Additional landscaping beyond the 5m landscape setback area and trees between parking bays is encouraged to further soften the visual impact of the building.
- Trees can be provided in clusters to provide greater strength during cyclone events.

Figure 6.2b *- Species List*

Tree Species			
Scientific Name	**Common Name**	**Mature Size**	**Planting rate (per m^2) to obtain 60% canopy coverage.**
Acacia anuera	Mulga	10m	single/group 3 - 5 per 10m2
Acacia coriacea	Desert Oak / Dogwood	7m	
Brachichyton acuminatus	Rock Kurrajong	8m	
Corymbia deserticola	Desert Bloodwood	7m	
Eucalyptus dichromophloia	Variable Barked Bloodwood	10m	
Lysiphyllum cunninghamii	Native Bauhinia	7m	
Melaleuca leucadendron	Cadjeput	10m	
Pittosporum phylliraeoides	Weeping Pittosporum	8m	

Shrub Species			
Scientific Name	**Common Name**	**Mature Size (height x spread)**	**Planting rate (per m^2)**
Acacia sclerosperma	Limestone Wattle	1.5m x 1.5m	1/sqm
Acacia xiphophylla	Snakewood	1.5m x 1.5m	1/sqm
Eremophila glabra	Emu Bush	1m x1m	3/sqm
Eremophilla macdonnelii		1m x1m	3/sqm
Eremophila maculata	Spotted Emu Bush	1.5m x 1.5m	2/sqm
Eremophila pterocarpa	Silver Poverty Bush	1m x 1m	3/sqm
Senna artemisioides	Silver Cassia	1.5m x 1.5m	1/sqm
Senna artemisioides ssp. helmsii	Crinkled Cassia	1.5m x 1.5m	1/sqm
Senna artemisioides ssp. Oligophylla	Bloodbush	1.5m x 1m	2/sqm
Senna artemisioides ssp.Sturtii	Grey Cassia	1.5m x 1.5m	2/sqm

Groundcover Species			
Scientific Name	**Common Name**	**Mature Size (height x spread)**	**Planting rate (per m^2)**
Acacia gregorii	Gregory's Wattle	0.5m x 2m	2/sqm
Enchylaena tomentosa	Barrier Salt Bush	0.1-0.6 x 2m	3/sqm
Gomphrena canescens	Bachelor's Buttons	0.1-0.9m x 0.8m	3/sqm
Ipomoea muelleri	Native Morning Glory	0.2m x 2m	2/sqm
Maireana georgei	Satiny Bluebush	0.5m x 1.3m	3/sqm
Pimelea ammocharis		0.2-1.5m x x1.5m	3/sqm
Ptilotus calostachyus	Weeping Mulla Mulla	0.2-2m x 0.5m	3/sqm
Ptilotus rotundifolius	Royal Mulla Mulla	0.5m x 1m	2/sqm
Scaevola parvifolia	Camel Weed	0.3m x 0.5m	3/sqm
Swainsona Formosa	Sturt's Desert Pea	0.3m x 1m	3/sqm
Tribulus hirsutus		0.15 x spreading	3/sqm

Tussock Species			
Scientific Name	**Common Name**	**Mature Size (height x spread)**	**Planting rate (per m^2)**
Chrysopogon fallax	Golden Beard Grass	0.3-1.5m(h)	4/sqm
Cymbopogon ambiguous	Native Lemon Grass	0.5m x0.5m	4/sqm
Triodia epactia		1m x 0.5m	4/sqm
Triodia pungens	Soft Spinifex	0.3-2m (h)	3/sqm

6.3 Landscape Irrigation & Water Use

The precinct is not connected to mains sewer, so each lot will be required to treat it's own sewage waste on-site. For more detailed information, refer to the Government of Western Australia Department of Health's Code of Practice for the Design, Manufacture, Installation and Operation of Aerobic Treatment Units (ATUs) for detailed guidelines.

Objectives:

- To maximise the efficiency of any irrigation required for landscape areas.
- To treat sewage entirely on-site.

Development Controls:

In accordance with this provision when planning the site layout and landscaping, lot owners are required to:

- Install a low flow trickle irrigation system.
- Install a programmable water controller/timer system.
- Direct stormwater runoff from building and hardstand area to the adjoining drainage swales, as per ***Section 6.1 Stormwater & Drainage Management***.
- Install an Aerobic Treatment Unit (ATU) or equivalent that is:
  - » Minimum 1.2 metres from Building or Property Boundary; and
  - » Minimum1.8m from the Disposal Area
- Provide a landscaped disposal area of no less than 150m^2
- Investigations with ATU providers will need to be undertaken to ensure compliance with the relevant health regulations.

Design Guidance:

- The ATU Disposal Area does not need to be square and can be divided into a maximum of two separate areas.
- The ATU Disposal Area is to be landscaped and pedestrian traffic should be excluded from this area.

Note:

- Please contact the Town of Port Hedland's Environmental Health Services Department to discuss the proposed effluent treatment systems to ensure that they will be compliant with State requirements.

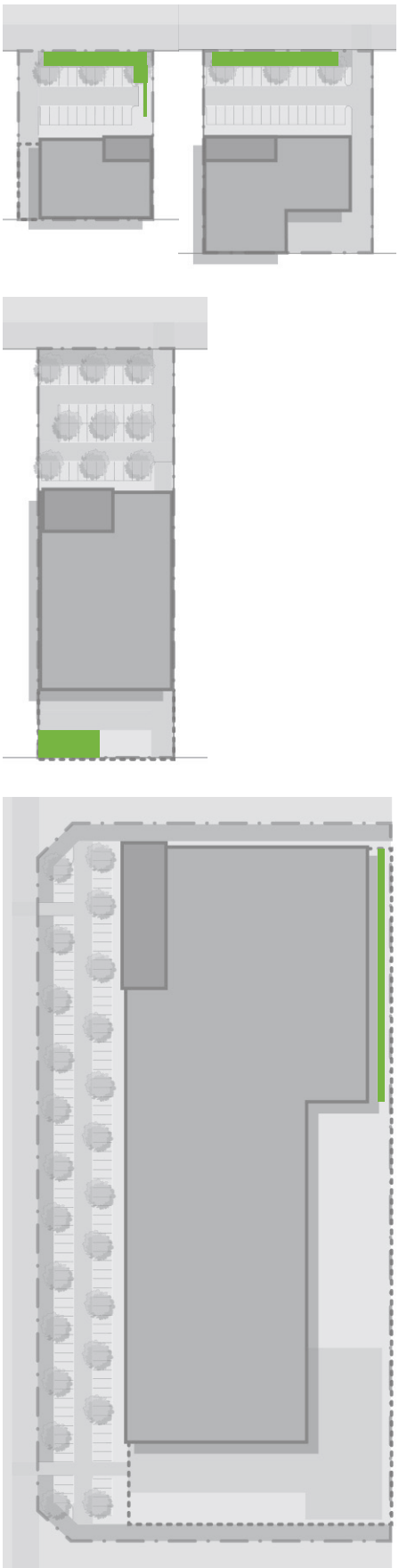


Figure 6.3a *- Examples of indicative locations of ATU distribution areas.*

6.4 Natural Light & Ventilation

Designing for the Pilbara climate requires special consideration in terms of a building's exposure to the sun and solar heat gain management. It is understood that solar protection will be paramount and some form of air conditioning all but a necessity.

Objectives:

- To reduce each building's requirement for artificial lighting and mechanical ventilation.
- To provide a balance of natural light, whilst minimising thermal heat gain.
- To ensure that natural light and ventilation is provided to all buildings.

Development Controls:

- Where nil side and/or rear setbacks are applied, the building design must demonstrate how natural light and ventilation will be provided.

Design Guidance:

Natural Light

Seek ways to introduce natural light to the centre of the building including:

- Clerestory windows (preferably oriented to capture diffused southern light).
- Rooflights (with careful consideration of translucent materials to limit solar gain).

Ventilation

Seek ways to encourage cross-ventilation including:

- Providing side wall openings.
- Locating clerestory windows so as to provide an outlet for rising warm air.
- Wind powered ventilation turbines to enhance the removal of rising warm air.
- Roof vents (actively or passively controlled) to further increase the upward flow of warm air in the building.

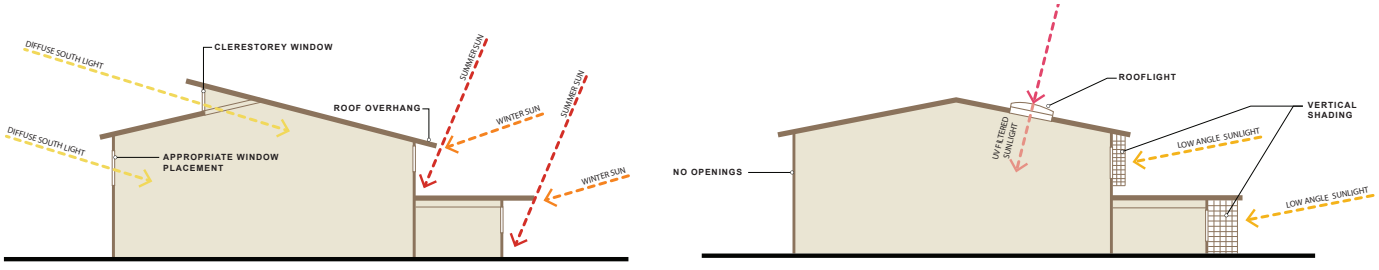


Figure 6.4a *- Opportunities for improving natural light and reducing thermal gain..*

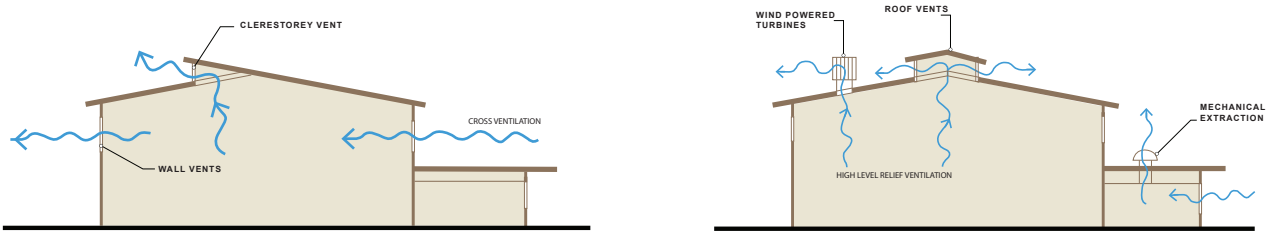


Figure 6.4b *- Opportunities for improving the ventilation..*

6.5 Provision for End of Trip Facilities

The Town encourages workers to cycle to work, rather than drive.

Objectives:

- To facilitate the use of alternative modes of transport, particularly bicycles.

Development Controls:

- Developments are to demonstrate how alternative transport modes have been encouraged, primarily through the provision of bike racks, showers and lockers.

Design Guidance:

- Suggested facilitating elements include:
  - » Providing staff showers, lockers and changerooms.
  - » Providing dedicated, secure covered bicycle parking areas.

PART B - TWA GUIDELINES

7.0 - Transient Workers Accommodation

7.1 Stormwater & Drainage Management

All lots in the TWA Precinct have been prepared with a sufficient volume of clean fill over the natural sandy/clay soils to create a final development pad which is clear of the AS 1 in 100 year flood event level for the allowable site coverage.

Some earthworks on site may be necessary to accommodate building layout and drainage between buildings.

Objectives:

- To provide the appropriate amount of fill for the finished floor level of the buildings on each site to be 500mm clear of the AS 1 in 100 year floor event.

Development Controls:

- The finished floor level of the buildings on each site are to be a minimum of 500mm clear of the AS 1 in 100 year floor event.
- The developer shall demonstrate how the proposed development will capture and manage surface runoff.

Figure 7.1a *- Drainage Plan.*

7.2 Building Setbacks

The setback requirements for TWA are minimal, to provide a high degree of flexibility in site layout.

Objectives:

- To provide flexibility of site layout options.
- To maintain amenity for future residents.
- To provide a street presence for each lot.

Development Controls:

- Setbacks are as per ***Figure 7.2a***.
- A 5m landscape setback zone is required to all street frontages.

Design Guidance:

- Developers are encouraged to locate a main reception or communal building towards the primary street frontage, with bus pull-in / arrival area in front and with additional parking areas set back from the front building line to the side or rear.

Figure 7.2a *- Setback & Easement Plan.*

7.3 Building Height & Site Coverage

These provisions relate to the maximum overall height of buildings and the maximum size of the building footprint.

Objectives:

- To maintain minimum clearances for the operational requirements of the airport.

Development Controls:

- Buildings shall be no more than 8m in height from finished ground level after fill has been distributed (fill to not exceed 1m).
- A minimum of 20% of the primary street frontage should be built form.

Figure 7.3a *-Site Coverage Plan.*

7.4 Building Entries & Address

These provisions relate to the relationship of buildings and their entrances to the street.

Objectives:

- To ensure that all buildings in the precinct relate and contribute to the streetscape and character of the precinct.
- To provide clear visual cues for entry points for visitors and deliveries through the building design.

Development Controls:

- All vehicle crossover points will be provided at the developer's expense.
- Buildings must be designed to address the street.
- The main entrance is to be on the front elevation or close to the front of the building and be clearly visible from the street and 'signalled' through the design.
- Entrance points to buildings are to be designed as focus points and must provide protection for pedestrians by means of substantial integrated building elements such as a verandah, canopy or colonnade.
- Where more than one building is planned for a site, their design must result in the creation of a group of integrated buildings presenting an harmonious image.

Design Guidance:

- Consideration should be given to the visual impression from the street and at a point of entry.

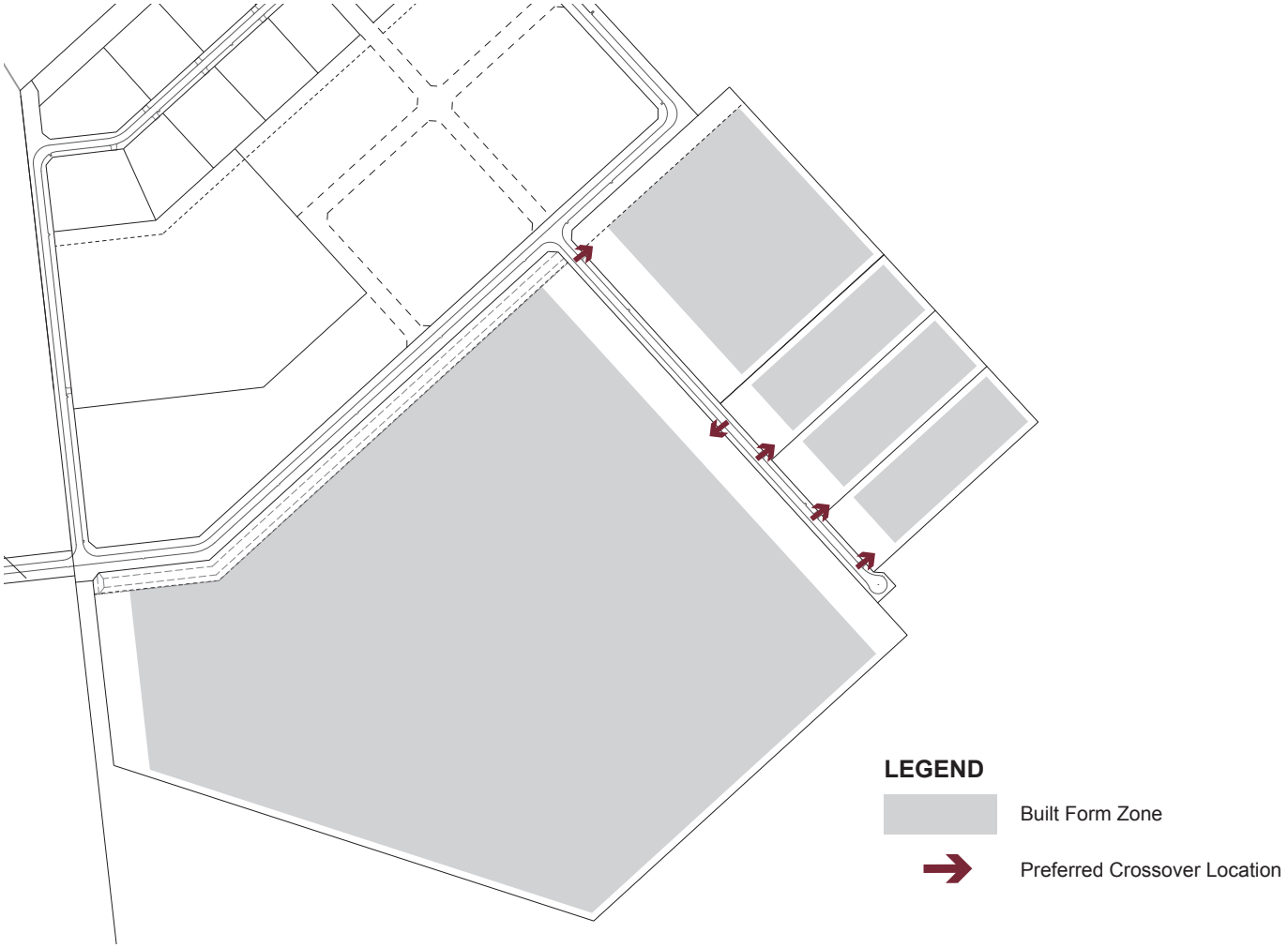


Figure 7.4a *-Site Access Plan.*

7.5 Boundary Fencing

These provisions relate to the location and treatment of fencing for each site and aim to achieve a level of consistency within the development as a whole.

Objectives:

- To provide security for businesses, without compromising the visual appeal of the precinct.

Development Controls:

- With the exception of Lot 435, no fencing is permitted forward of the building nearest the street.
- Security fencing will be permitted along side and rear boundaries.
- Electric and barbed wire fencing shall only be permitted if considered suitable by the Town of Port Hedland to the satisfaction of the Manager of Planning Services.
- The minimum standard for fencing is black cyclone mesh PVC galvanised link mesh fencing.
- Fencing forward of the building nearest the street must be landscaped on both sides.

7.6 External & Internal Lighting

Lighting, in particular, will need to be carefully selected so that it does not impact the operation of the neighbouring airport.

Objectives:

- To provide a safe working environment during and after business hours.
- To minimise adverse impacts of light spill to adjoining properties, passing motorists or airport operations.

Development Controls:

External Lighting

- External lighting shall be directed to within the site, or provided with shields to limit light spill.
- No external lighting shall be directed beyond the lot boundary.
- High frequency compact fluorescent lamps or T5 Triphosphor fluorescent lamps are required for external areas.

Internal Lighting

As a minimum standard, all development must feature, but shall not be limited to:

- Light fittings that utilise high efficacy light sources such as high pressure sodium discharge lamps or T5 triphosphor fluorescent lights.

Design Guidance:

- Timer controls, photosensitive cells, or motion sensors to control operation of specific light fixtures and fittings are encouraged for both internal and external lighting.

External Lighting

- Down lights mounted on the façade should be avoided, while the up lighting of surface façades is to be encouraged.

7.7 Landscaping

These provisions relate to the application of appropriate species of plants for landscaping treatments within the development. The trees on the species list have been limited to those that will not to encourage birdlife to the area. Water-hungry species are proposed for landscape areas associated with drainage swales and ATU disposal areas. Species with low water requirements should be used for all other areas.

Objectives:

- To soften the visual impact of built form and provide shade where possible.
- To avoid increase in local bird activity, due to conflicts with neighbouring airport uses.

Development Controls:

- The purchaser is required to vegetate and maintain the full extent of the 5 metre wide landscape setback to the front section of the lot, to the satisfaction of the Town of Port Hedland.
- All plant species must be selected and planted in accordance with the swale and open area planting list (refer to ***Figure 7.7a***).
- All landscape and planting shall be undertaken by a qualified contractor.
- Suitable species of shade tree are to be provided to parking areas at a ratio of 1 per 4 car bays, evenly throughout the parking areas (unless alternate shading is provided for bays adjacent to the building).

Design Guidance:

- All approved plant species should be planted in the appropriate planting zones. For example: waterlogged swale planting, intermediate swale planting, intermediate swale planting, and dry planting.
- Additional landscaping beyond the 5m landscape setback area and trees between parking bays is encouraged to further soften the visual impact of the building.
- Trees can be provided in clusters to provide greater strength during cyclone events.

Figure 7.7a *- Species List*

Tree Species			
Scientific Name	**Common Name**	**Mature Size**	**Planting rate (per m^2) to obtain 60% canopy coverage.**
Acacia anuera	Mulga	10m	single/group 3 - 5 per 10m2
Acacia coriacea	Desert Oak / Dogwood	7m	
Brachichyton acuminatus	Rock Kurrajong	8m	
Corymbia deserticola	Desert Bloodwood	7m	
Eucalyptus dichromophloia	Variable Barked Bloodwood	10m	
Lysiphyllum cunninghamii	Native Bauhinia	7m	
Melaleuca leucadendron	Cadjeput	10m	
Pittosporum phylliraeoides	Weeping Pittosporum	8m	

Shrub Species			
Scientific Name	**Common Name**	**Mature Size (height x spread)**	**Planting rate (per m^2)**
Acacia sclerosperma	Limestone Wattle	1.5m x 1.5m	1/sqm
Acacia xiphophylla	Snakewood	1.5m x 1.5m	1/sqm
Eremophila glabra	Emu Bush	1m x1m	3/sqm
Eremophilla macdonnelii		1m x1m	3/sqm
Eremophila maculata	Spotted Emu Bush	1.5m x 1.5m	2/sqm
Eremophila pterocarpa	Silver Poverty Bush	1m x 1m	3/sqm
Senna artemisioides	Silver Cassia	1.5m x 1.5m	1/sqm
Senna artemisioides ssp. helmsii	Crinkled Cassia	1.5m x 1.5m	1/sqm
Senna artemisioides ssp. Oligophylla	Bloodbush	1.5m x 1m	2/sqm
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Groundcover Species			
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Maireana georgei	Satiny Bluebush	0.5m x 1.3m	3/sqm
Pimelea ammocharis		0.2-1.5m x x1.5m	3/sqm
Ptilotus calostachyus	Weeping Mulla Mulla	0.2-2m x 0.5m	3/sqm
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Triodia epactia		1m x 0.5m	4/sqm
Triodia pungens	Soft Spinifex	0.3-2m (h)	3/sqm

7.8 Landscape Irrigation & Water Use

The precinct is not connected to mains sewer, so each lot will be required to treat it's own sewage waste on-site. For more detailed information, refer to the Government of Western Australia Department of Health's Code of Practice for the Design, Manufacture, Installation and Operation of Aerobic Treatment Units (ATUs) for detailed guidelines.

Objectives:

- To maximise the efficiency of any irrigation required for landscape areas.
- To treat sewage entirely on-site.

Development Controls:

In accordance with this provision when planning the site layout and landscaping, lot owners are required to:

- Install a low flow trickle irrigation system.
- Install a programmable water controller/timer system.
- Direct stormwater runoff from building and hardstand area to the adjoining drainage swales, as per ***Section 7.1 Stormwater & Drainage Management***.
- Install an Aerobic Treatment Unit (ATU) or equivalent that is:
  - » Minimum 1.2 metres from Building or Property Boundary; and
  - » Minimum1.8m from the Disposal Area
- Provide a landscaped disposal area of no less than 150m^2 that is:
  - » Investigations with ATU providers will need to be undertaken to ensure compliance with the relevant health regulations.

Design Guidance:

- The ATU Disposal Area does not need to be square and can be divided into a maximum of two separate areas.
- The ATU Disposal Area is to be landscaped and pedestrian traffic should be excluded from this area.

Note:

- Please contact the Town of Port Hedland's Environmental Health Services Department to discuss the proposed effluent treatment systems to ensure that they will be compliant with state requirements.

Development Checklist

Item	Yes / No	Comments	Reference
Have you selected a desired lot location that suits your intended land use and level of activity?			Section 1.0 Vision, Purpose & Structure
Does your development include as Transient Worker Accommodation?			Part B - TWA Guidelines
Have you sited your building to allow for the front setbacks relevant for your lot?			Section 4.1 & 7.2 Building Setbacks
Have you provided the appropriate amount of parking for your intended land use?			Appendix 7 ToPH Planning Scheme No.5
Have you provided the appropriate level of shading to parking areas through shade trees and/or shade structures?			Section 4.3 Parking & Site Access
Does your development address the street & is the building entry clear and legible?			Section 4.1 & 7.4 Building Entries & Address
Are servicing and unloading areas located behind the front building line?			Section 5.2 External Service, Washdown Bays, Rubbish & Storage Areas
Are rubbish and storage areas located behind the front building line, screened from view and treated appropriately?			Section 5.2 External Service, Washdown Bays, Rubbish & Storage Areas
Do the materials and colours used in your building correspond with the Guidelines for the precinct as a whole?			Section 5.4 Material Finishes & Colour
Is plant and equipment suitably screened or incorporated into the building design?			Section 5.5 Plant Equipment
Does your signage comply with the signage strategy for the precinct as a whole?			Section 5.6 Signage & Graphics (Advertising)
Is your development lit so as to ensure safety, energy efficiency and minimise light spill?			Section 5.7 & 7.6 External & Internal Lighting
Does the proposed development on your site present as an integrated whole?			Section 5.8 Outbuildings & Other Structures
Does your development meet the minimum requirements for the AS 1 in 100 year flood event and contribute to the drainage strategy for the precinct as a whole?			Section 6.1 & 7.1 Stormwater & Drainage Management
Does your development include appropriate landscaping?			Section 6.2 & 7.7 Landscaping
Does your development accommodate an ATU (or equivalent) and provide sufficient waste water disposal area?			Section 6.3 Landscape Irrigation & Water Use
Has your design considered how natural light and ventilation can be integrated while minimising heat loads?			Section 6.4 Natural Light & Ventilation

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